REMARKS

Claims 1-46 remain pending in the application.

Claims 8 and 23 were rejected under 35 U.S.C. 112, second paragraph. Clarifying amendments have been made to claims 8 and 23 to address the Section 112 rejection as well as the related Section 101 rejection.

Claims 1, 16, 31 and 32 were rejected under 35 U.S.C. 102(e) as being anticipated by Reddy. Applicant respectfully traverses.

Turning first to claim 1, Applicant claims that the upstream and downstream bit rate requirements are determined for a user application and that the duplexing ratio is adapted to meet those user application needs based on the determined bit rates. As discussed in the Specification, the user application refers to a program application which is executing and needs to make use of the DSL communications link. In Reddy, signal to noise measurements are made at the central office and remote location and then these ratios are used to determine data rates and thus bandwidth apportionment. There is no teaching or suggestion in Reddy for the claimed process where bit rate requirements are user application driven and then those requirements are satisfied through an adapted duplexing ratio. Claim 1 is accordingly not anticipated by the Reddy reference.

Claim 16 is asserted to define over Reddy for at least the same reasons as claim 1.

Claim 31 includes a limitation relating to idle cell removal wherein the upstream and downstream bit rate requirements are determined not only for a user application, as discussed above, but also by implementing the idle cell removal process so that, as discussed, the idle cells are not counted in the user application bit rate requirements which drive the bandwidth allocation

determination. It has previously been argued that Reddy fails to teach or suggest the claimed process where bit rate requirements are user application driven and then those requirements are satisfied through an adapted duplexing ratio. Claim 31 is accordingly not anticipated by the Reddy reference. Still further, Reddy fails to teach or suggest accounting for idle cell removal in the process of calculating bit rate requirements. Instead, the process in Reddy is signal to noise ratio driven. Claim 31 is thus further distinguished over the Reddy reference.

In view of the foregoing, withdrawal of the Section 102 rejection of claims 1, 16 and 31-32 is requested.

Claims 2-3, 17-18 and 33-34 were rejected under 35 U.S.C. 103(a) as being unpatentable over Reddy in view of Duvaut. Applicant submits that claims 2-3, 17-18 and 33-34 are patentable over the art of record for at least the same reasons as claims 1, 16 and 31.

Claim 4-19 and 35 were rejected under 35 U.S.C. 103(a) as being unpatentable over Reddy in view of Cole. Applicant submits that claims 4-19 and 35 are patentable over the art of record for at least the same reasons as claims 1, 16 and 31. Applicant further traverses the rejection. Cole teaches that stream data includes both actual data and idle data. Cole further teaches that usage monitoring with respect to received data (i.e., already DSL transmitted) can be made based on the actual data. Nowhere, however, does the Examiner assert that Cole teaches the claimed limitation relating to "removing unnecessary idle ATM cells" with respect to the upstream or downstream communications (i.e., to be transmitted data). This is because it is clear that Cole is concerning solely with removing those idle cells AFTER the communication is received. Cole is not concerned with the issues of bandwidth use for an initiated (i.e. to be

transmitted) DSL communication. Applicant accordingly submits that the teachings of Cole are irrelevant to the claimed invention.

Claims 5, 20 and 36 were rejected under 35 U.S.C. 103(a) as being unpatentable over Reddy. Applicant submits that claims 5, 20 and 36 are patentable over the art of record for at least the same reasons as claims 1, 16 and 31.

Claims 6-13, 21-28 and 37-44 were rejected under 35 U.S.C. 103(a) as being unpatentable over Reddy in view of Sadjadpour. Applicant submits that claims 6-13, 21-28 and 37-44 are patentable over the art of record for at least the same reasons as claims 1, 16 and 31. Applicant further traverses the rejection in view of some clarifying amendments made to these dependent claims.

The claims have been amended to recite that there exists a required multi-subcarrier bandwidth that is smaller than a total available bandwidth. The multi-subcarrier limitation emphasizes that the claimed operations occur with respect to multiple DSL subcarriers as opposed to a single subcarrier. Thus, the subsequently claimed operations for calculating, for a plurality of subcarrier location positions and choosing a location position for the required multi-subcarrier bandwidth are made in the context of multiple subcarrier analysis. The claims, as amended, are believed to distinguish over the Reddy and Sadjadpour references.

The Examiner has already conceded that Reddy fails to teach the claimed optimization of DSL communications performance. Applicant respectfully submits that the Sadjadpour reference neither teaches nor suggest the claimed process. In Sadjadpour, a teaching is provided for individually allocating bits to individual frequency bins that requires the least possible power for a maximum data rate (page 13, line 19-22). This minimizes total power consumption (page

14, lines 3-4). A modification of this process is then used to minimize NEXT (page 14, lines 5-7). This effectively forces the allocation of bits to lower frequency bins (page 14, lines 13-14) because NEXT effects are higher at higher frequencies than lower frequencies (page 11, lines 14-20).

The Sadjadpour teaching in effect has pre-selected a needed bandwidth and a location within that needed bandwidth for an existing DSL communication, and then uses the algorithm to plug bits of that DSL communication into individual frequency channels of the needed bandwidth at the chosen location. The operation of Sadjadpour is accordingly performed with respect to individual channels (not multi-channels) and further is performed AFTER determining the placement location within the overall available bandwidth of the needed bandwidth for the DSL communciation. This is contrasted with the claimed invention which instead operates responsive to "a new DSL loop communication" which has a "required bit rate corresponding to a required multi-subcarrier bandwidth that is smaller than a total available bandwidth." The claimed invention does not presume a location within the total available bandwidth, as in Sadjadpour, but instead calculates "for a plurality of subcarrier location positions of the required multi-subcarrier bandwidth for the new DSL loop communication within the total available bandwidth, a crosstalk noise effect of the new DSL loop communication with respect to the at least one active DSL loop." In effect, the claimed invention is testing crosstalk contribution of the new DSL loop communication at a plurality of possible location positions. A position has not yet been chosen and DSL communications have not yet been generated. Then, "a location position for the required multi-subcarrier bandwidth [is chosen] to carry the new DSL loop

communication within the total available bandwidth where the calculated crosstalk noise effect with respect to the at least one active DSL loop is minimized."

There is no teaching or suggestion in Sadjadpour for the crosstalk minimization process claimed which occurs with respect to a new DSL loop communication before the multi-subcarrier DSL signal is generated. Rather, Sadjadpour performs its crosstalk minimization process with respect to an existing DSL communication by testing the crosstalk effect of placing a given bit of that DSL communication in one of a number of possible frequency bins. There is no indication in Sadjadpour for his process being useful or useable prior to the generation of the multi-subcarrier DSL signal of the new DSL loop communication. Nor is there any teaching or suggestion in Sadjadpour for his process being operable with respect to multi-subcarrier bandwidth placement, as opposed to individual bit placement at a frequency within a bandwidth. In view of the foregoing, Applicant respectfully submits that the claimed invention is patentable over Sadjadpour.

Applicant further points out that the claimed process and the process of Sadjadpour are complementary in that the claimed process can be used with a new DSL loop communication to determine its best minimal crosstalk bandwidth placement within the available spectrum, and the Sadjadpour process can then be used after the new DSL communication is transitioned to an active DSL communication to most effectively place bits of that active (new) communication into frequency bins so as to minimize crosstalk.

In view of the foregoing, Applicant submits that claims 6-13, 21-28 and 37-44 are patentable over the cited prior art.

Applicant further submits concurrently herewith a Declaration by the inventor Xianbin Wang pursuant to 37 CFR 1.131 of prior invention with respect to the cited Reddy reference.

Respectfully submitted,
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